3.0020 Notes on the Palaearctic Grasshopper, Meconema thalassinum (De Geer), (Orthoptera: Tettigoniidae: Meconematinae) Established in Long Island, New York [1]

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An unusual tettigoniid was recently discovered in a group of miscellaneous insects collected for the Lyman Entomological Museum at King's Park, Suffolk County, Long Island, New York, August 2, 1968, by R. M. Emberson. The specimen, a slightly teneral adult male, was determined by Dr. D. K. McE. Kevan as *Meconema thalassinum* (DeGeer) Figs. 1 & 2).

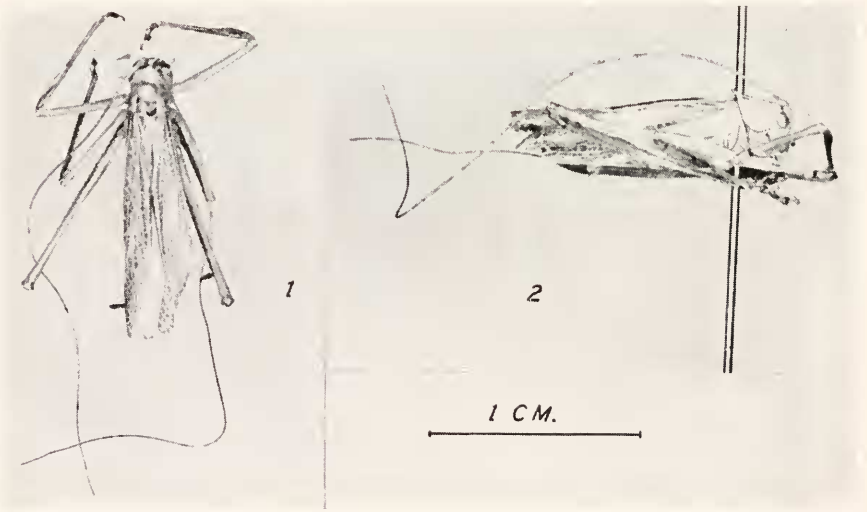

Fig. 1. *Meconema thalassinum* (DeGeer), male, dorsal view; Fig. 2. *Meconema thalassinum* (DeGeer), male, lateral view.

The previous records in North America, by A. B. Gurney (1960, 1960a), include two males, two females, July and August 1957; one female

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and one male July, 1959; all collected by John K. Terres at Little Neck, close to the border of Queens and Nassau counties, Long Island, New York. The specimen recorded here indicates that *M. thalassinum* is established and has increased its distribution on the island.

The genus *Meconema* is not native to the Nearctic or Neotropical fauna. *M. thalassinum* is widely distributed in Europe. The Meconematinae, a very small group, has been ranked at various levels by several authors but was placed as a subfamily by Ragge (1965) (see also Beier, 1966). There are but two additional species of *Meconema*, *M. meridionale* Costa, 1860, found in southern Europe, and *M. subpunctatum* Motschoulsky, 1866, from Japan. There is some doubt concerning the true status of the latter species.

No Nearctic records of *M. thalassinum* are known other than the present one and those recorded by Gurney (1960, 1960a).

M. thalassinum is arboreal, frequenting a variety of deciduous trees, including oak. In England, the common name for this species is Oak Bush Cricket (Kevan, 1952, 1961; Ragge, 1965). The Long Island property of Mr. John K. Terres contains introduced trees and shrubs, and introduction into the United States could well have been by eggs deposited in imported plant material (Gurney, 1960). The female oviposits within the uneven surfaces of tree bark and among lichenous material covering the trunks of trees (Lucas, 1912, fig. 3; Chopard, 1938; Gurney, 1960; Ragge, 1965).

The insect is nocturnal and, in England, maturity is reached during the latter part of July and in August. Its life-span is relatively long, often enabling it to survive until late fall months.

Some confusion exists as to the feeding habits of this tettigoniid. Ragge (1965) states that it chooses principally animal matter upon which to feed, such as small insect larvae and aphids, but, in captivity, leaves are apparently accepted although survival is poor. This is at variance with Currie (1953), who stated that it could easily be kept in captivity devouring readily leaves of oak, rose and birch. Currie (*op. cit.*) had also observed it in the field, feeding upon sawfly larvae. Lucas (1912) reported this species to be occasionally carnivorous. It is apparently omnivorous, like many nemobiine crickets, and this may also contribute to its seasonal longevity.

The principal morphological characters of *M. thalassinum* are the tegmina of the male, which resemble those of the female and lack the characteristic sound-producing organs of most other males of the Tettigoniidae. Although small, fine teeth are found close to the inner tegminal margin, the exact function of these has not been determined. The veins in this area are not specialized. The insect does, however, stridulate in a unique

manner. A male erects its tegmina and hind wings above the body, while the abdomen is vibrated extremely rapidly and could possibly be struck repeatedly against a leaf or twig upon which the insect is situated. Many of those who have attempted to study this aspect of behavior of *M. thalassinum* are doubtful that the abdomen is necessarily brought into contact with any surface. Currie (*op. cit.*), who assiduously observed drumming phases over a period of time, stated that the body is raised and that any part of the abdomen which contacted anything during the vibratory phases would be the subgenital plate or the cerci which he described as being depressed. (See also Kevan, 1954.)

However, Ragge (1965) states that the first tarsal joint of the hind leg of the male, which is provided with a hard, specialized area, is used to strike against the substratum in a manner causing a vibrating sound, the other hind leg being extended for support. The abdominal movements occur simultaneously, and normally without contact with any surface. An audiospectogram of the sound pattern of *M. thalassinum* is clearly depicted by Ragge (1965, fig. 38), showing that the stridulation is muted, unvarying in pitch, and occurs in short, extremely rapid pulses, the first few brief pulses lasting a little over $\frac{1}{2}$ second, followed by 1 second pulses with 2 to $2\frac{1}{2}$ second periods of silence between each pulse.

The specimen at hand, from Long Island, is faded, but the dorsal, yellow, median stripe and the two oblong, brownish-black spots on the hind third of the pronotum are clearly defined. The sub-acute fastigium is abnormally depressed between the antennal sockets due to some shrinkage of tissue. The eyes are typically swollen and globular; the diagnostic, ovate-elongate auditory organs are clearly seen on the proximally expanded frontal tibiae; the cerci are typical of *M. thalassinum*, being conspicuously long, curved upward, with simple apices. The subgenital plate is short, apically truncate, and bears two small movable lateral appendages. The tegminal length from the hind edge of the pronotum, is approximately 11 mm. The length of the body from the frontal region of the head, and excluding the cerci, is 10 mm.

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2.0020 Palaearctic Meconema thalassinum in N. Y. (Orth., Tettigoniidae, Meconematinae)

Abstract.—Records confirm the establishment of *Meconema thalassinum* (DeGeer), a Palaearctic species, in Long Island, New York.—R. H. Arnett, Jr.

Descriptors: Orthoptera; Tettigoniidae; Meconematinae; Meconema thalassinum; Grasshopper; Long Island, N. Y.; Introduced species; Palaearctic.